

CLAIMS

1. A communications system, comprising:
 - a distribution frame, the distribution frame including
 - at least one shelf, and
 - at least one interconnection panel within the at least one shelf, the interconnection panel including a plurality of termination ports for cross-connecting signal channels; and
 - an intelligent fiber distribution operations administration and maintenance apparatus attached to the distribution frame and operably connected to the interconnection panels for operating the distribution frame and monitoring and indicating cross-connections between the interconnection panels.
 - 2. The communications system as recited in claim 1, wherein the distribution frame has a shelf cover, and wherein the intelligent fiber distribution operations administration and maintenance apparatus is attached to the shelf cover.
 - 3. The communications system as recited in claim 1, wherein the intelligent fiber distribution operations administration and maintenance apparatus is configured as a shelf cover for the distribution frame.
 - 4. The communications system as recited in claim 1, wherein the distribution frame includes at least one controller that monitors permissible connections and cross-connections of the at least one interconnection panel, and wherein the intelligent fiber distribution operations administration and maintenance apparatus includes an interface operably connected to the at least one controller.
 - 5. The communications system as recited in claim 1, wherein the intelligent fiber distribution operations administration and maintenance apparatus includes an input interface for the interconnection panel termination ports.

6. The communications system as recited in claim 1, wherein the intelligent fiber distribution operations administration and maintenance apparatus includes signal buttons and indicators corresponding to the interconnection panel termination ports.
7. The communications system as recited in claim 6, wherein the indicator further comprises an LED indicator.
8. The communications system as recited in claim 1, wherein the intelligent fiber distribution operations administration and maintenance apparatus includes at least one input device selected from the group consisting of a keypad, a keyed display, a keyless display, an LCD display screen, and a touch screen.
9. The communications system as recited in claim 1, wherein the communication system further comprises a plurality of interconnection panels and wherein the intelligent fiber distribution operations administration and maintenance apparatus further comprises an array of user inputs that correspond to the interconnection panel termination ports.
10. An intelligent fiber distribution operations administration and maintenance apparatus for operably coupling to a distribution frame, wherein the distribution frame has at least one distribution shelf, the distribution shelf having a shelf controller and a plurality of interconnection panels, wherein the interconnection panels include a first plurality of termination ports for connecting to a first signal channel and a second plurality of termination ports for cross-connecting to a second signal channel from a different interconnection panel, the intelligent fiber distribution operations administration and maintenance apparatus comprising:

a plurality of signal buttons corresponding to the plurality of interconnection panels, wherein the signal buttons are attached to the distribution frame and operably connected to the interconnection panels;

a plurality of indicators corresponding to the plurality of signal buttons; and

an interface operably connecting the plurality of signal buttons to the shelf controller,

wherein the signal buttons energize their corresponding indicator and, based on information from the shelf controller, the indicators identify termination ports that are connected, to be connected or that need maintenance.

11. The apparatus as recited in claim 10, wherein the distribution frame includes a cover for protecting the distribution shelf, and wherein the intelligent fiber distribution operations administration and maintenance apparatus is adapted to attach to the distribution frame cover.

12. The apparatus as recited in claim 10, wherein the intelligent fiber distribution operations administration and maintenance apparatus is configured as a protective cover coupled to the distribution frame for protecting the distribution shelf.

13. The apparatus as recited in claim 10, further comprising a user input apparatus operably connected to the interface.

14. The apparatus as recited in claim 10, wherein the intelligent fiber distribution operations administration and maintenance apparatus is arranged as an array of user inputs that correspond to the interconnection panel termination ports.

15. The apparatus as recited in claim 10, wherein the distribution frame includes a cover for protecting the distribution shelf, wherein the intelligent fiber distribution operations administration and maintenance apparatus further comprises a planar substrate connected to the cover, and wherein the plurality of signal buttons and the plurality of indicators are coupled to the planar substrate.

16. The apparatus as recited in claim 15, wherein the planar substrate has a first surface for coupling to the cover and an opposing second surface, and wherein the

plurality of signal buttons and the plurality of indicators are coupled to the second surface of the planar substrate.

17. The apparatus as recited in claim 10, wherein the plurality of indicators further comprise LED indicators.